

Seat No. : _____

AD-128

April-2025

B.Sc., Sem.-VI

BTI-308 : Biotechnology (Agriculture Biotechnology)

Time : 2:30 Hours]

[Max. Marks : 70

1. Outline the process of in vitro fertilization and embryo transfer. How does in vitro fertilization differ from artificial insemination ? 14

OR

1. (A) Explain the development of knock-out mice and its importance. 7
(B) Describe the importance of gen bank of endangered species with examples. 7

2. Discuss particle bombardment and Ti plasmid gene transfer methods used in producing transgenic plant. 14

OR

2. (A) Write about plant as bioreactor for production of vaccines with examples. 7
(B) Discuss RNA induced gene silencing. 7

3. Explain methods to generate somoclonal variations and its applications. 14

OR

3. (A) Write about media, sterilization techniques used for callus culture. 7
(B) Explain briefly methods to produce virus free plants. 7

4. Discuss integrated biological control methods. 14

OR

4. (A) Explain mechanism of *Bacillus thuringiensis* delta -endotoxin. 7
(B) Write about GM food parameter for improvement of vitamins with an example. 7

5. Answer any **seven** of the following :

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- (1) Write about pronuclear injection method used in production of transgenic animals.
 - (2) Give two scientific names of organisms used in apiculture.
 - (3) Define 'transgenic' animal. Name two transgenic fish.
 - (4) Define transposons.
 - (5) What are the characteristics of Bt-Cotton and Bt-Maize ?
 - (6) What is chloroplast and mitochondrial genome transformation ?
 - (7) What is synthetic seed ? Write two applications.
 - (8) Write four applications of plant tissue culture.
 - (9) Define cellular dedifferentiation and redifferentiation.
 - (10) Write the importance of seed bank.
 - (11) Define probiotic and prebiotic .Give an examples of each.
 - (12) What is fermented food ? Give two examples.
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